Analytical Requirements for Analysis of Passive Soil Gas Samples by EPA Method 8260

Passive soil gas samples are analyzed at a fixed laboratory using thermal desorption-gas chromatography/mass spectrometry (TD-GC/MS) instrumentation following U.S. EPA Method 8260, which is an internal calibration methods requiring specific levels of quality control (QC). Method 8260 requires at a minimum:

- Five-point initial calibration with the low-point of the curve below the laboratory's reporting limit
- Daily tune
- Daily continuing calibration at the mid-point of the initial 5-point calibration curve from a second source standard
- Daily method blank
- Introduction with each analysis of internal standards and surrogates appropriate to the range of compounds being targeted and adhering to the acceptance criteria developed by EPA Method 8260
- Development of a 7-replicate method detection limit (MDL) study, performed with contiguous analyses at the concentration on the low-point of the initial calibration curve, with reporting limits for individual compounds at least 5 times greater than the established MDLs.

Therefore, in order to report a compound with a 25 nanogram (ng) reporting limit, the low point on the 5-point calibration must be less than 25 ng, and a 7-replicate MDL study must be performed at the same low point on the 5-point calibration. The reporting limit must be 5 times greater than the established MDL measurement (e.g., an MDL of 5 ng allows for a reporting limit of 25 ng).

The table below provides a summary of QC checks required for the analysis of passive soil gas samples by EPA Method 8260.

5-Point Initial Calibration	Prior to sample analyses and annually at a minimum or when the continuing calibration check does not pass
Initial Calibration Verification	Performed immediately after the 5-point initial calibration using a second source at mid-point of initial calibration
System tune	Daily prior to the analysis of field samples
System Performance Check	Daily prior to the analysis of field samples
Continuing Calibration Check	Daily prior to the analysis of field samples
Method Blank	Daily prior to the analysis of field samples
Internal Standards	Introduced with each field sample and QC check
Surrogates	Introduced with each field sample and QC check
Duplicate Analysis	10% of total number of field samples
Note: Acceptance criteria and corrective actions are provided in USEPA Method 8260.	